Chapter 2: Existing Conditions

Sanford Creek

Chapter Outline:

HISTORY OF WAKE FOREST

The roots of Wake Forest stretch back to the early 1800s and the purchase of 615 acres by Dr. Calvin Jones. In 1823, the site was home to the "Wake Forest Academy for Boys." In 1834, it was sold to the North Carolina Baptist Convention and became the "Manual Labor Institute." The school grew rapidly and, in 1838, was renamed "Wake Forest College."

The growing school had an increasing need for space and money and decided to divide the property into lots and sell them for $100 each. Eighty one-acre lots north of the campus and west of the railroad were put on the market in 1839. This area was later known as Faculty Avenue and today constitutes the greater portion of the Wake Forest Historic District. The College was temporarily closed from 1862 to 1866 because of the Civil War.

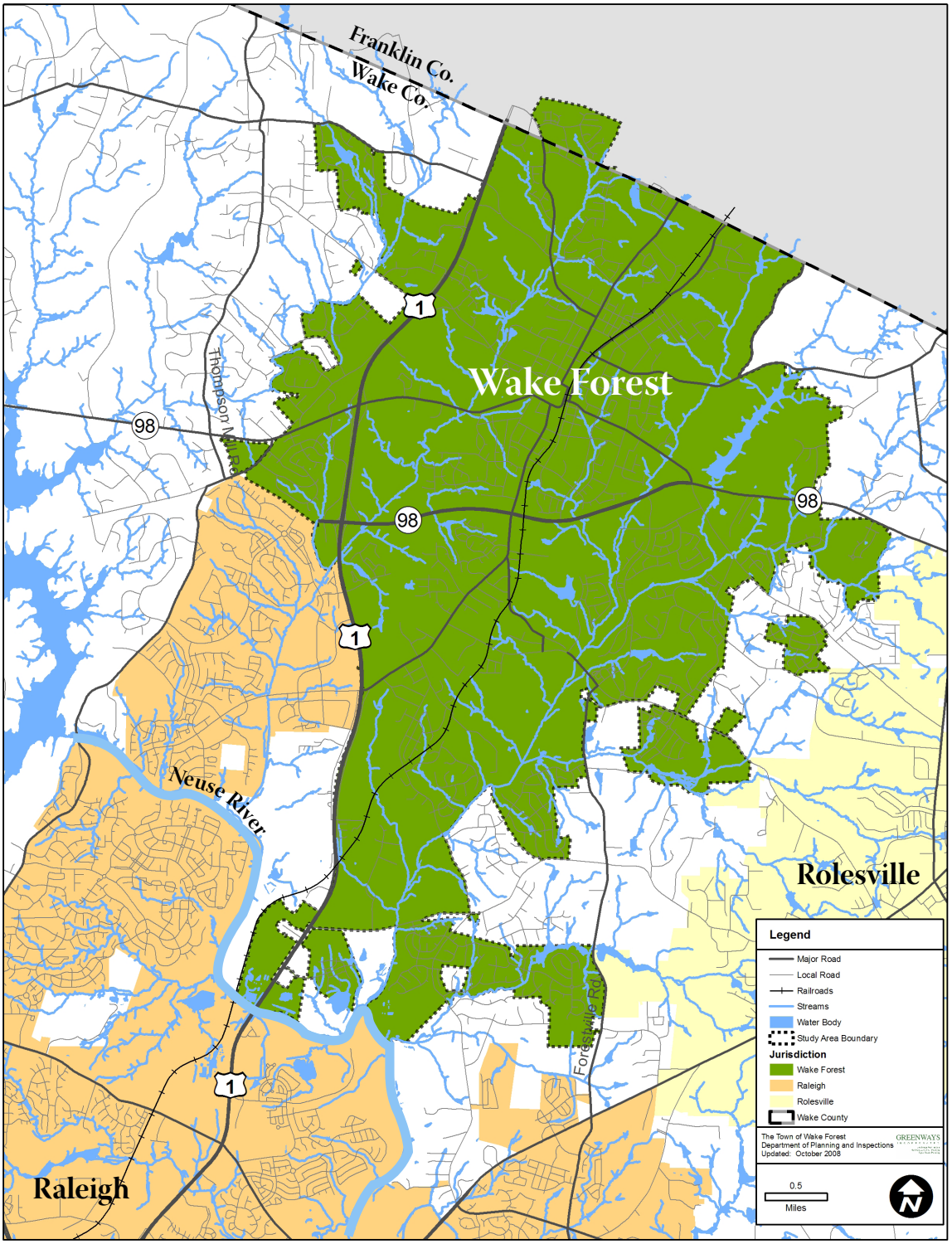
When the Raleigh and Gaston Railroad station moved from Forestville to Wake Forest College, a substantial increase in the commercial development of Wake Forest was underway. And in 1909, the community drafted its first charter to become the Town of Wake Forest. Steady growth continued into the 1950s, when Wake Forest College was transferred to Winston-Salem, North Carolina, and the existing site was sold to its current occupant, the Southeastern Baptist Theological Seminary.

Wake Forest has continued to attract families and businesses. In recent years, the nearby Research Triangle Park (RTP) has experienced explosive growth. While the region sustains success with the arrival and advances of medical and high technology firms, the accessibility and livability of Wake Forest assures it of maintaining a highly desirable quality of life.

THE STUDY AREA

The study area for this Open Space Plan is defined principally by the Neuse River (to the south) and the Wake County / Franklin County Line (to the north). The western boundary runs south from the County line along Thomson Mill Road to Capital Blvd. (US-1) and down to the Neuse River. The eastern edge of the study area generally follows Forestville Road from the southern end, north to Sanford Creek, and then north-northwest to the County line.

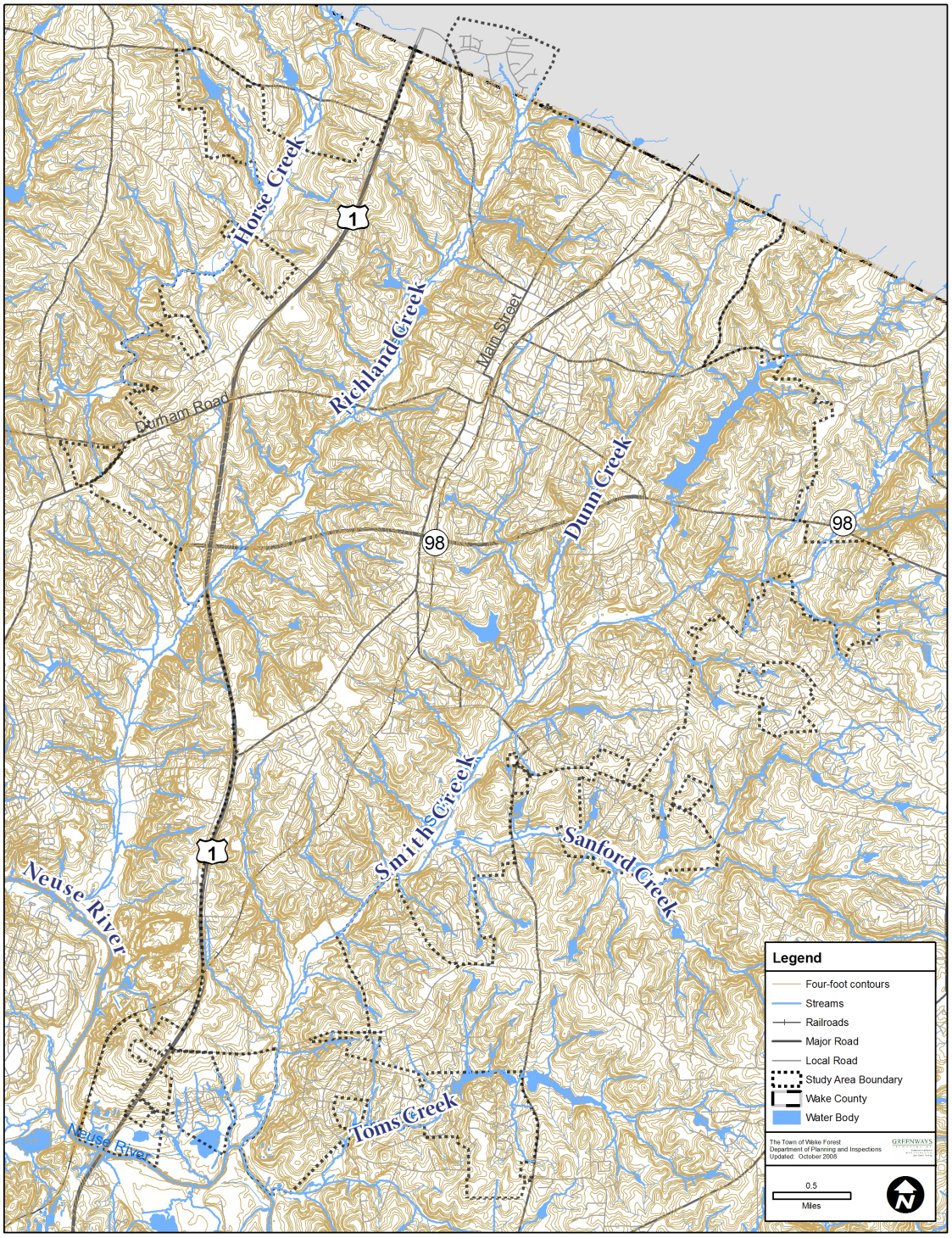
MAP 2A: STUDY AREA



TOPOGRAPHY

The topography of the study area can be characterized as rolling to hilly terrain. Major drainageways are bordered by steep slopes. The largest corridors in the study area (see Richland Creek and Smith Creek in Map 2B below) lie in north to south running valleys. The Richland and Smith creeks flow south to the Neuse River. Horse Creek, in northwest Wake Forest flows south to Falls Lake. Other creeks, such as Tom's Creek and Sanford Creek, follow east/west corridors. Downtown Wake Forest is situated atop the ridge that divides the Richland Creek watershed from the Smith Creek watershed. Elevations within the study area range from approximately 220 to 440 feet above sea level. Rounded ridgetops give way to moderate slopes and level out to relatively broad floodplains.

MAP 2B: LAND FORM



SOILS

The soil types within the study area are characteristic of soils found on ridges and the sides of ridges. The study area primarily consists of Cecil association soils. Soils around Wake Forest tend to be deep and well drained. Typically, they have a subsoil of firm, red clay, and surface layers tend to be sandy loam or gravelly sandy loam to clay loam.

In the lowlands, near stream courses, the soils are primarily of the Chewacla or Wehadkee associations. This area contains hydric and semi-hydric soils (waterlogged soils) typical of floodplains. The properties of these soils make development difficult due to greater engineering requirements and higher construction costs.

VEGETATION

Vegetation, composed principally of overstory trees, understory trees, shrubs and groundcovers, is a critically important feature of the natural landscape. Vegetation filters pollutants from the air, surface and subsurface waters; moderates local climates; offers relief from exposure to sun, wind and rain; and provides habitat for numerous species of wildlife. Wake Forest is predominantly forest-covered, featuring shagbark hickory (Carya ovata), white oak (Quercus alba), and river birch (Betula nigra). Understory vegetation is comprised primarily of greenbriar (Smilax spp.), sedge grass (Carex spp.), bull rush (Juncus spp.), native bamboo, and wool grass (Scirpus cyperinus). Along stream corridors, density is controlled by seasonal flooding, allowing for a relatively clear understory. The edge community is dominated by sweet gum (Liquidambar styraciflua) saplings, small cedars (Cedrus spp.), and sweet bay magnolia (Magnolia virginiana). Vacant farmlands are dominated by andropogon (Johnson's grass) and sumac (Rhus spp.).

Wetlands are typically defined by the presence of three unique, interrelated natural features: hydrology, hydric soils, and vegetation species. Wetlands are critical ecological systems because of their ability to filter pollutants from surface water, recharge underground aquifers, absorb floodwaters, and serve as habitat for a diverse variety of plant and animal life. Most wetlands are protected by Section 404 of the Federal Clean Water Act, which authorizes the U.S. Army Corps of Engineers to regulate the discharge of dredged and fill materials into waters of the United States, including wetlands (called "Jurisdictional Wetlands").

The primary canopy wetland species are red maple (Acer rubrum), willow (Salix spp.), ironwood (Carpinus caroliniana) and river birch. The understory is principally composed of reeds, greenbriar, and small grasses. Due to the shade cast by canopy trees, there is very little groundcover. However, along cleared corridors, such as sewer line easements, enough sunlight penetrates the canopy to support a carpet of rye grass, planted to stabilize the soil and permit access along the corridor.

WILDLIFE

There are two broad categories of wildlife that are of concern to this planning effort: "interior" forest species wildlife and "edge" species wildlife. Most species of wildlife that inhabit urban areas are known as "edge" species. These mammals, birds, amphibians and insects have adapted to urbanized landscapes and have developed harmonious relationships with urban residents. However, "interior" species require undisturbed forest environments to survive and, because of the human population growth and resulting land development, have experienced significant habitat loss and population declines.

Habitats for rare and common "interior" and "edge" species exist in various forms throughout the Wake Forest area. Diverse habitats are typically connected by migration corridors that allow plant and animal species to move through the landscape. The migration corridors most important to the study area are along streams. The Wake Forest Open Space and Greenway Plan is concerned with both the remnants of "interior" forest species and the "edge" environments that exist within the floodplains of the study area. These resource areas are the most valuable for wildlife in that they provide a food source, water and shelter. Approximately, eighty percent of all wildlife depends on riparian corridors for survival. Therefore, the protection of floodplains is crucial to sustaining a diverse wildlife population in Wake Forest.

The presence of wetlands and Brown's Lake create the potential for a wildlife refuge and/or park attraction; however, there is limited support from the surrounding neighborhoods for a greenway facility.

During site visits, evidence was found of beaver, squirrel and deer populations. Even a tiger salamander was discovered. Opossum and raccoons are expected to be in abundance. Bird species that one can expect to find within the study area include: black-capped chickadee, red-bellied woodpecker, northern cardinal, and barred owl.

POPULATION

Within the municipal boundaries of Wake Forest, the population grew from 5,581 in 1990 to 13,175 in 1999. The Town's population has increased even more dramatically since 2000, with an estimated 2008 population of **27,217.** Population density in 2008 (persons per acre) was estimated at at 2.81. As the population continues to grow, the need for conservation of undeveloped lands, such as greenway corridors, will also continue to increase.

INFRASTRUCTURE

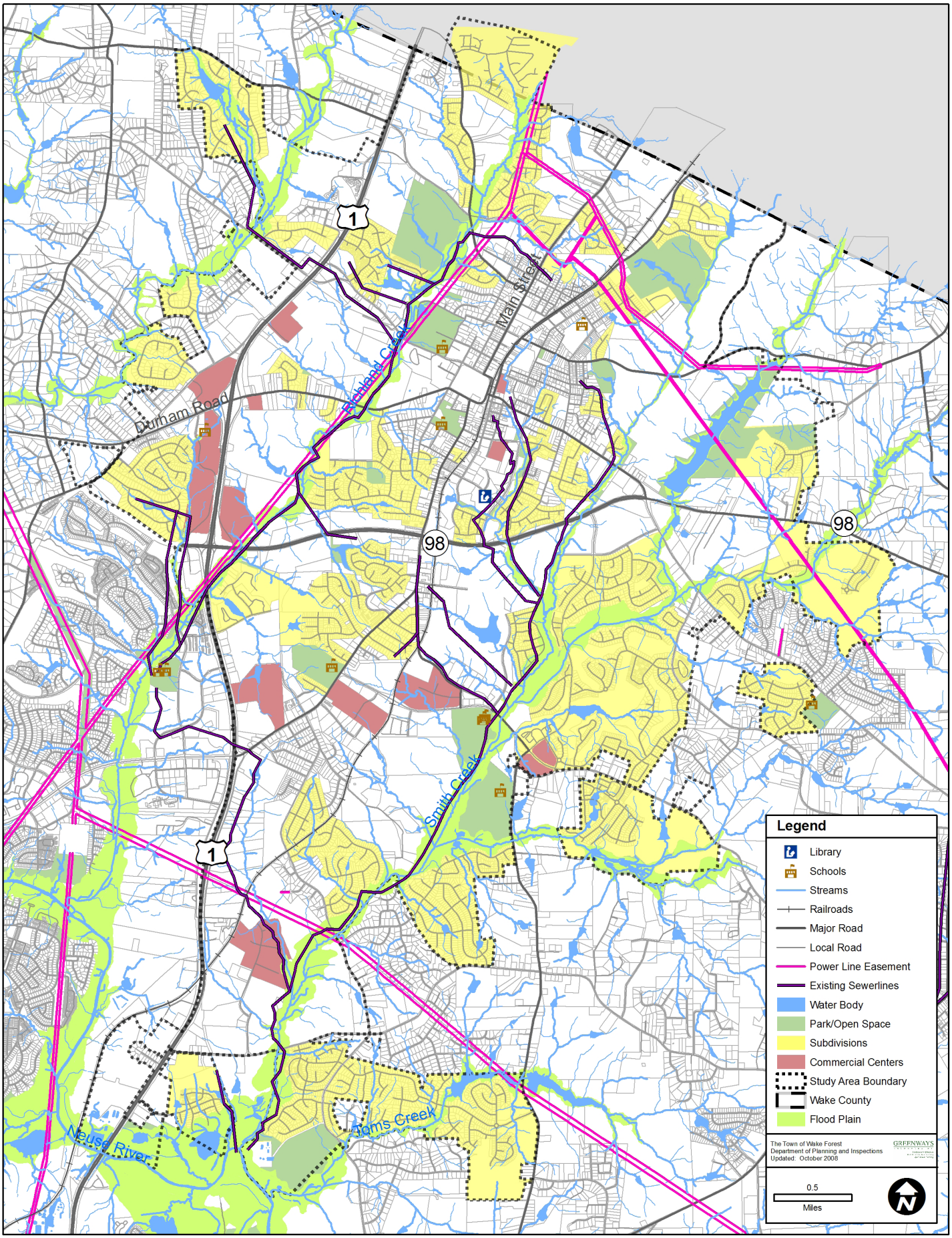
Infrastructure is the skeleton of a community and a critical determinant of future development. Infrastructure easements can play a significant role in the alignment of greenway facilities. Oftentimes, utility companies can be persuaded to grant surface easements for the construction of trails that can be used by the public as well as utility vehicles for easement maintenance.

In Wake Forest the available infrastructure data displays water and sewer lines (see map 2C. page 2-7). Most notable are the lengthy stretches of sewer lines in the floodplains of Richland Creek and Smith Creek. These facilities should remain the focus of greenway planners because of their potential to link the community from north to south. Easements that are currently for sewer only (as opposed to sewer and greenway easements) should be targeted for revision to allow for greenways. Also, sewer easements managed by the City of Raleigh within the Town of Wake Forest are still owned by the Town, so greenway planners from both municipalities will coordinate their planning efforts for trail development.

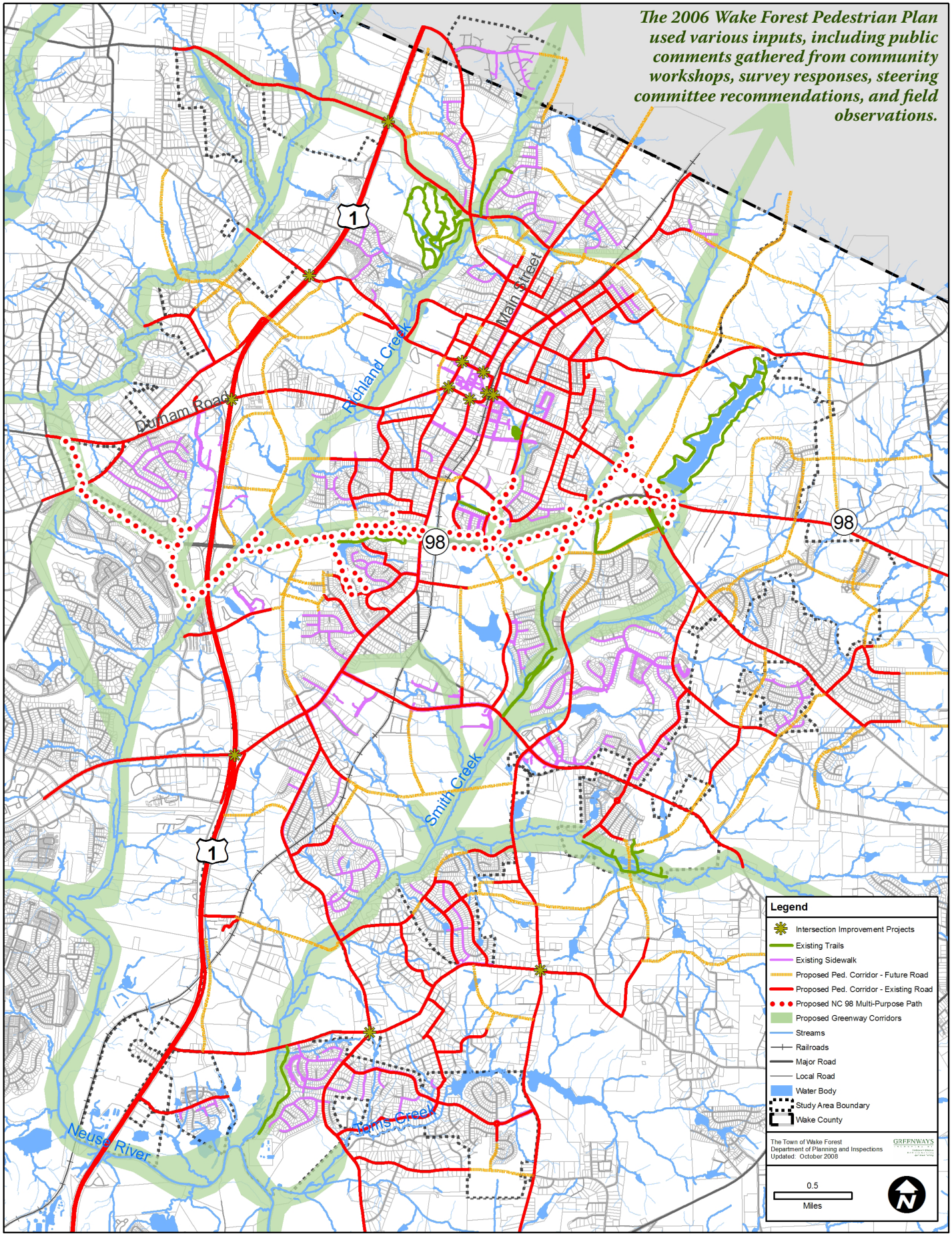
The Richland Creek corridor flanks downtown to the west. At the time of the 2002 Open Space and Greenways Plan, it was considered the most suitable for immediate greenway construction; however, development pressure along Smith Creek made it the second highest priority, resulting in greenway acquisition and trail construction along parts of Smith Creek. Also, Heritage High School is being developed nearby along the Sanford Creek Greenway, with easements dedicated for connections between the Smith Creek Greenway, downtown, and students residing in Heritage Wake Forest.

Similar to water-related infrastructure, the existing transportation infrastructure also has the potential to be incorporated into the greenway network. Bicycle facilities and sidewalks within roadway corridors should be added or improved where possible to act as interim connections during long-term greenway projects. Both the Pedestrian Plan and the Bicycle Plan contain lists of recommended on and off road facilities that may be critical in linking existing and proposed greenway segments (see maps 2D and 2E on pages 2-7 and 2-8 for the Pedestrian Plan and the Bicycle Plan recommendations; refer to the full plans for more details).

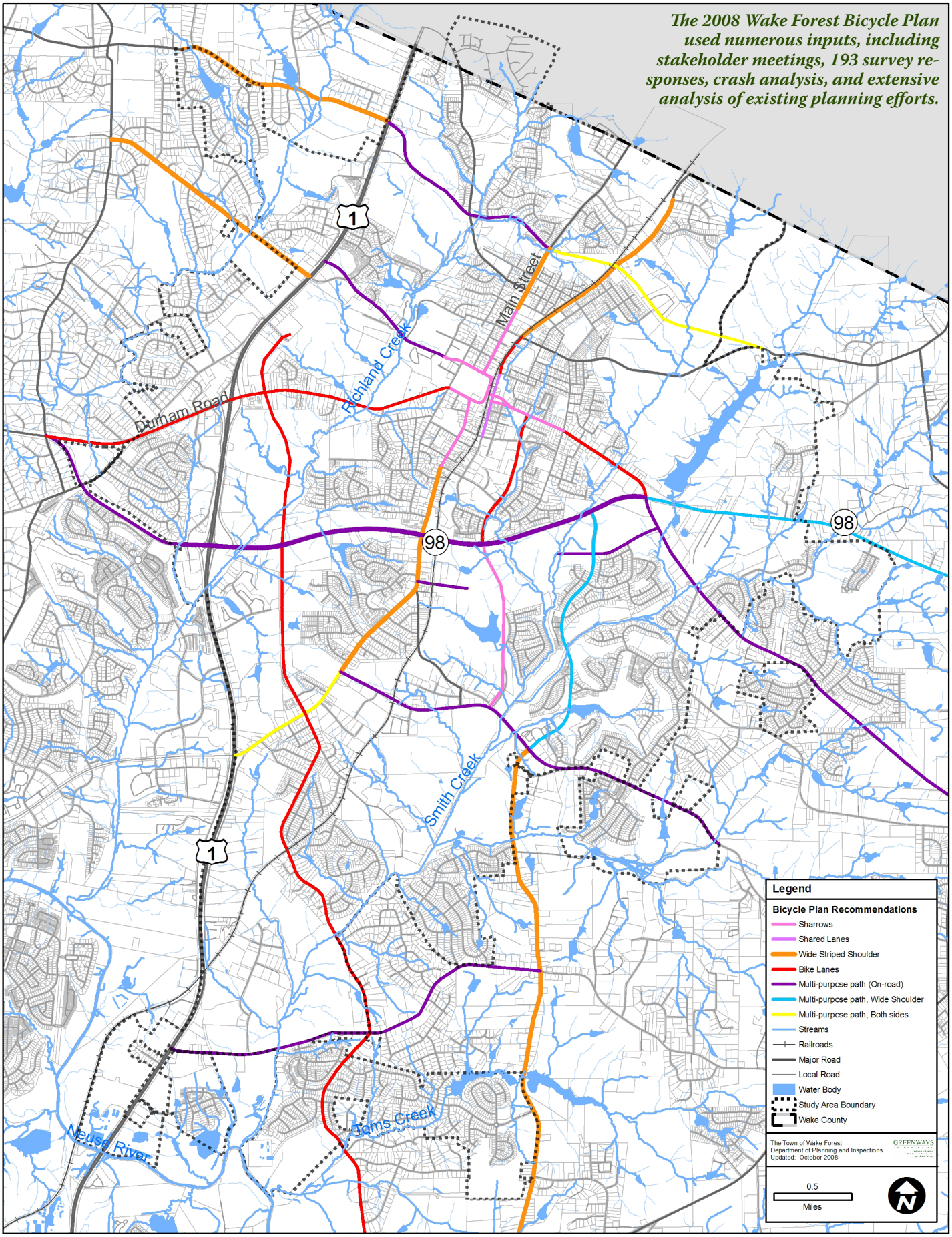
MAP 2C: INFRASTRUCTURE



MAP 2D: THE WAKE FOREST PEDESTRIAN PLAN



MAP 2E: THE WAKE FOREST BICYCLE PLAN



LAND USE

Wake Forest is located in northern Wake County, the fastest growing county in North Carolina throughout the 1990s. This extraordinary growth has continued into the 21st Century, with the population growing an incredible 4.9 percent from 2006 to 2007, making Wake County the 60th most populous county in the nation. Wake Forest's development pattern can be divided into three distinctive regions, defined by the ridgelines and streams. In general, residential development is occurring both along the ridgelines and in lower elevations.

Farmland to the west is primarily utilized for tree farming and as pastureland. Likewise, the land around the Wake Forest Reservoir is zoned for forestry. Eastern agricultural activities primarily involve raising field crops and pastureland. Development in the eastern portion of Wake Forest, centered around Sanford and Smith Creeks, is shifting towards medium-density residential neighborhoods.

Capital Blvd. (US-1) is a north/south corridor along which large scale automobile oriented commercial development is occurring. There is significant residential development pressures in Wake Forest, particularly in the southeastern sections as people continue to turn to Wake Forest for its small town and historic charm

PARKS AND RECREATION LANDS

In 2005, The Town of Wake Forest completed its Parks and Recreation Master Plan Update, which gives a summary of existing park and recreation conditions. The plan includes results from the 2003 Recreation Participation and Preference Survey and input gathered from multiple public meetings. Overall, the plan indicates a desire on the part of Wake Forest residents to have increased access to recreational opportunities of all types.

The Town of Wake Forest maintains five mini parks of less than two acres in size, six neighborhood parks between five and 20 acres in size, and three metro parks of over 100 acres in size. Also, the western portion of the study area borders on the Falls Lake recreational area, a notable recreation area that provides outdoor activities such as fishing, canoeing and kayaking, and hiking.

There are several new opportunities for public recreation within Wake Forest that have been developed since the 2002 Open Space and Greenway Plan (see map 2F, page 2-13). The Town added a community center, a two-acre dog park, and four lighted tennis courts to J.B. Flaherty Park; developed the Smith Creek Soccer Center (southeast of Downtown); added new greenway trails and nature preserves along Sanford Creek; added 45 acres of parkland adjacent to Heritage High School; and the 117-acre Joyner Park northwest of Downtown Wake Forest.

The Town has indicated that while it would continue to maintain these parks, it would not develop additional mini parks. This is due in part to the fact that private recreation areas (play areas, etc.) are frequently developed as part of new subdivisions that often serve the same role as a mini park.

The Parks and Recreation Plan also outlines some regional and national recreation trends to be taken into consideration when planning for recreation facilities. Some noted trends of interest include:

- Passive recreational activities such as Walking Facilities and Multi-Use Pathways are topping the lists of desired amenities.
- Creating interconnected systems both within the community and regionally is a key goal of most communities.
- These facilities also provide vital links to residential areas, commercial zones and workplaces to encourage walkable community initiatives and safe alternatives to automobile commuting.
- Parks and recreation facilities that highlight environmental or ecological processes and have a focus on education are being developed throughout the nation.

Below: Flaherty Park and Smith Creek Soccer Center

OPEN SPACE & GREENWAY RESOURCES

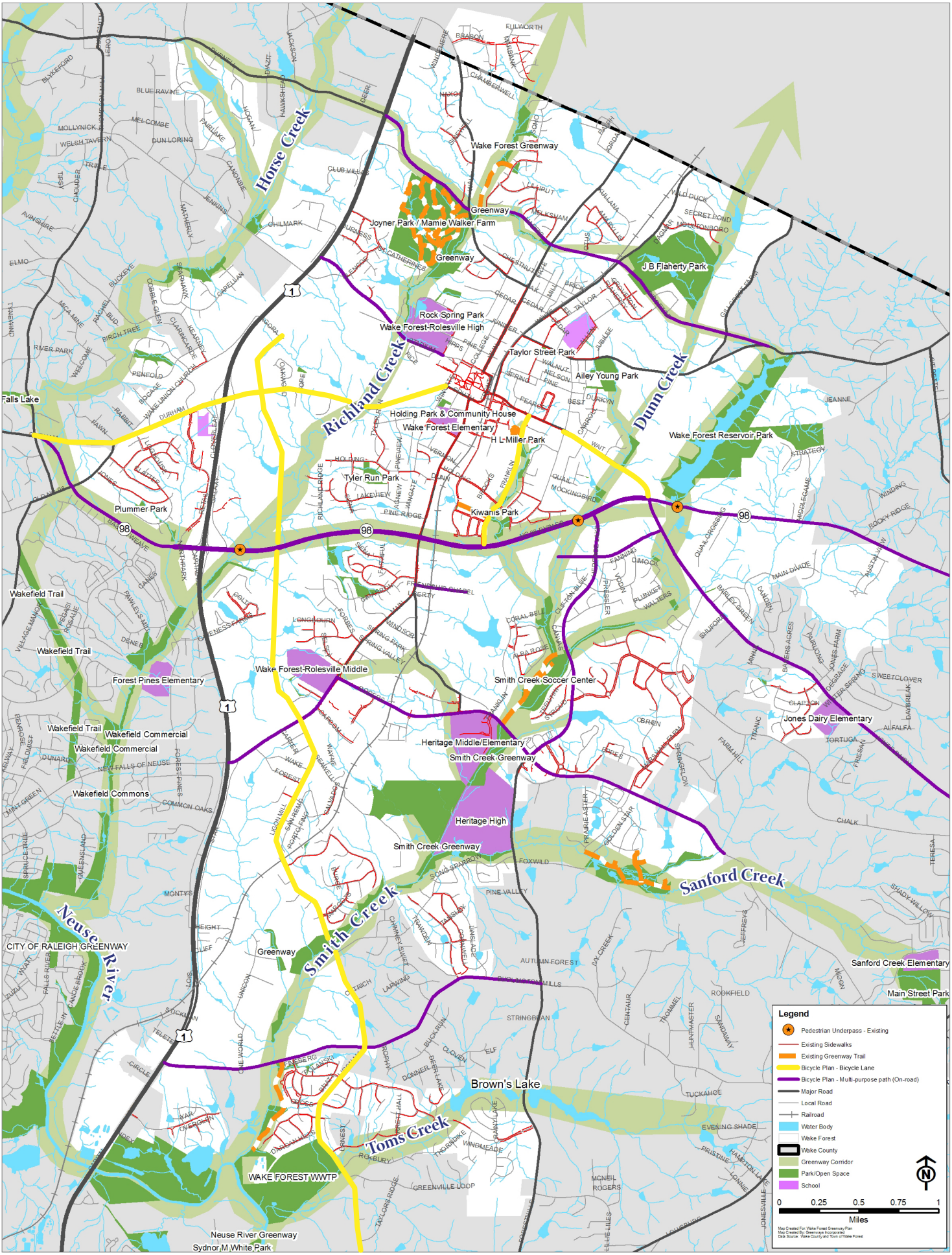
The Town of Wake Forest has significant holdings in public land, totaling approximately 500 acres (see map 2F, page 2-13). These land holdings are diverse in size and location. The majority of publicly owned open spaces in Wake Forest are small and located in more densely populated areas. Larger public open spaces are found mainly south and east of downtown, on school, park, and water/wastewater properties. Connectivity of open space throughout the Town will be a challenge, particularly through residential neighborhoods where greenway easements are not in place. However, the locations and types of parcels already in public ownership provide a starting point for building a connected open space and greenway network, even with continued development.

While the greatest development pressures are in the southern portions of the Town's ETJ, the western portion of the study area is also being identified as an attractive place to live. Residents west of Capital Blvd. (US-1) enjoy a close proximity to the recreational amenities offered by Falls Lake, while maintaining reasonable connections to downtown Durham, via Highway 98, and Raleigh, via Capital Blvd. (US-1).

Property does not have to be publicly owned or completely separated from development for the public to enjoy the landscape. Wake Forest is considered a beautiful town not only because of the small town charm in its downtown building stock, but also due to the character of the surrounding landscape. The gently rolling terrain that separates the four primary watersheds of Wake Forest is a critical resource for the town. Residents enjoy the undeveloped open spaces composed of woodland, agricultural land, and stream corridors in a part of the county that was once considered rural, but is now becoming suburbanized as residential neighborhoods and commercial facilities continue to develop. While development and economic activity will certainly continue to shape the community, Wake Forest is still rich in visually appealing open space throughout the study area.

Currently, the Town of Wake Forest requires developers to reserve land, sometimes in the form of easements, for greenways based on the planned future greenway locations indicated in the Town's Open Space and Greenway Plan; however, developers are not required to construct the greenways or to pay fees-in-lieu for construction. The Town does require developers to pay a recreation facility fee, which contributes to a fund for the construction of future Parks and Recreation facilities in the Town, including greenway trail construction.

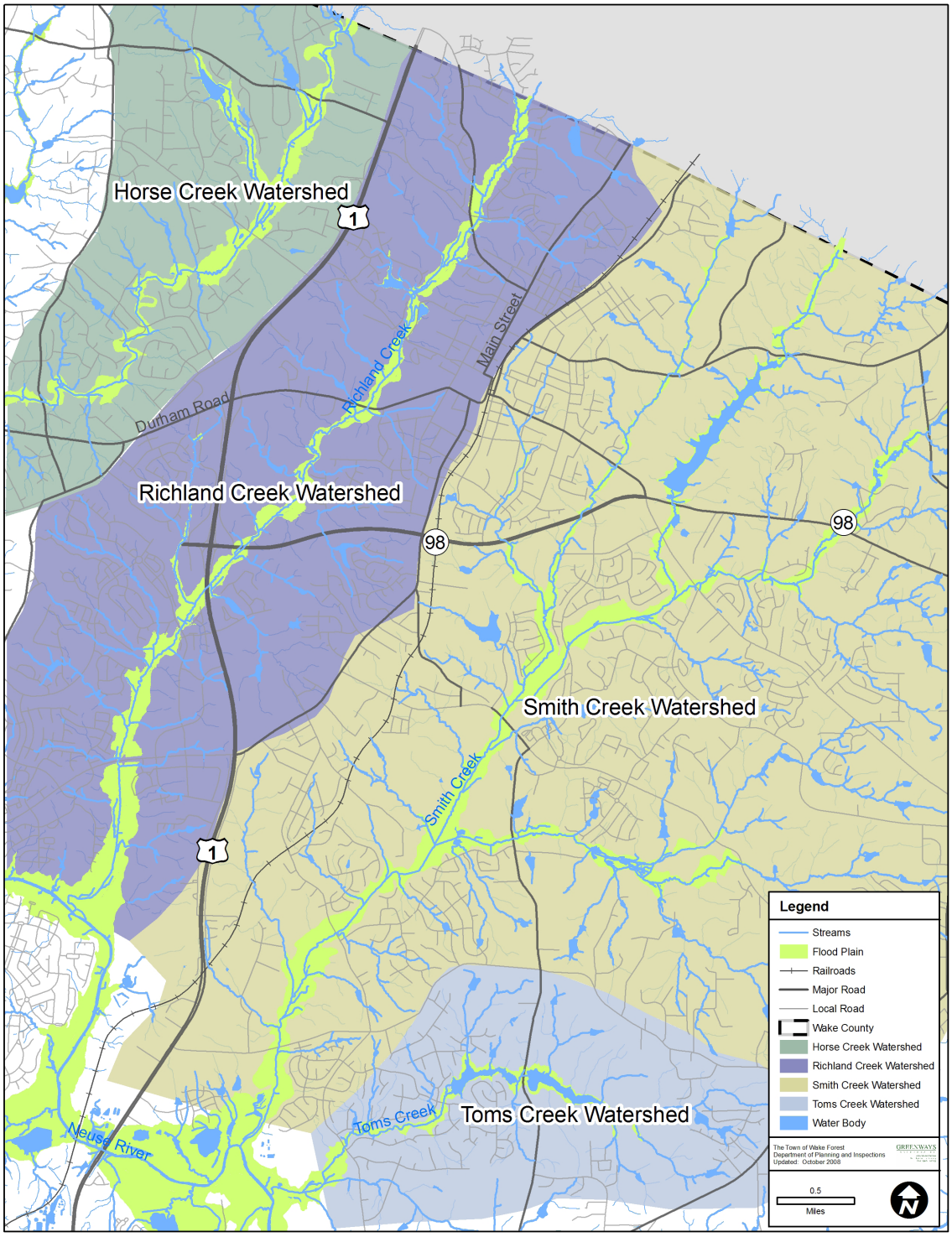
MAP 2F: OPEN SPACE & GREENWAYS



WATERSHED AREAS

The study area has been divided into sub-areas of focus based upon watershed boundaries. These areas are the Smith Creek watershed, the Richland Creek watershed, the Horse Creek watershed, and Tom's Creek watershed (see map 2G below). Determining ecological health and the suitability for greenway facilities and improvements are the primary objectives when investigating the study area's open space resources. Site inspections focused upon stream corridors, flood plains, and public utility easements, as well as upland areas and ridgelines.

MAP 2G: WATERSHEDS



SMITH CREEK WATERSHED

There has been a significant amount of development in the Smith Creek watershed since the Open Space and Greenway Plan was adopted. A 2,000-acre golf course community, known as Heritage Wake Forest, continues to develop from the eastern part of the town (between Rogers Rd. and the NC 98 Bypass Corridor) and is expanding to the north, south and east towards the Rolesville jurisdiction. There are also new subdivisions in the southern portion of the Smith Creek watershed to the south of the Heritage Schools and in the area adjacent to the wastewater treatment plant. The Smith Creek Soccer Complex has been completed and is located within the Heritage subdivision. Additionally, the new Heritage High School is near completion (located on Forestville Rd) and will have two baseball fields, two soccer fields and six lighted tennis courts.

While the large amount of development occurring in the Smith Creek watershed presents certain challenges to greenway planning efforts, it also represents an increasing need for greenways in the area, as increased population translates to increased need for recreational facilities and enhanced connectivity. Also, with two schools already in use and a third on the way, providing safe routes to school, an objective given high priority in both the Bicycle and Pedestrian Plans, becomes all the more critical.

Currently, the Smith Creek Greenway has just over one mile of paved trails located in two sections: between the Neuse River and Burlington Mills Road, and along the Smith Creek Soccer Complex in the Heritage Wake Forest Subdivision. Both sections take advantage of existing sewer corridors. Power lines also run along portions of Smith Creek and could be explored for trail opportunities.

Red oaks and pines were noted along the ridges while tulip poplars, red maples, and sycamores were identified in the lower, wetter areas. In many areas it was obvious that a boardwalk would be necessary in order to address the wet conditions. Greenway easements and/or fee simple ownership are advisable as the best method for preserving the creek flood zones and low areas.

Greenway Development in the Smith Creek Watershed

There is currently a half-mile long, 10-foot-wide paved asphalt trail located on the west side of the Smith Creek Soccer Complex. The Town has recently targeted a one mile section of the Smith Creek corridor, extending north from the soccer center to the NC-98 Bypass. The Town and DOT have already installed a pedestrian culvert underneath NC-98 for the future continuation of the trail. The new addition would extend the amount of paved trail along Smith Creek to more than two miles, and would be a significant step in connecting the southern and northern areas of the Smith Creek Watershed to downtown. In recent years, area voters approved $500,000 in bond proceeds for trail construction and the Town secured a $50,000 Recreation Trails Grant.

There are also numerous small, isolated segments of trails at various places throughout the Smith Creek Watershed:

- The Heritage South Section of the Sanford Creek Greenway is a 1.1 mile section of paved and boardwalk trail. This greenway segment is a positive step toward connecting with the future Rolesville greenway system, which will extend along Sanford Creek from the east. The developer constructed the Heritage South Section in lieu of payment of recreation facility fees, in what is an excellent partnership resulting in trails constructed for immediate use along with the new homes.

- There is a 10 foot wide, quarter-mile segment of paved asphalt trail behind Kiwanis Park running between White and Franklin Streets immediately north of the NC 98 Bypass.

- There is also a quarter-mile segment of paved trail located within Flaherty Park.

- Finally, H.L. Miller Park contains approximately a half-mile of five foot wide paved trails.

While these disconnected segments of trail are not practical in terms of transportation facilities, they are valuable on their own as recreation facilities, and increase the attractiveness of the parks as destinations.

In 2002, an inspection of the reservoir trail system showed it to be small, poorly defined, and sporadically maintained. As of this 2008 Plan update, there is no longer a reservoir trail system. Minimal trails are planned for interim access to the Reservoir with volunteers working to establish two to three foot wide soft trails. Extensive trails along Dunn Creek, just west of the reservoir, are planned with the development of the proposed 'Traditions' subdivision. The trails are planned as standard 10 foot wide paved trails, connecting to Flaherty Park. Also, the 'Reserve' subdivision is making a dedication to the Town of Wake Forest, providing for a much easier crossing on the northeast side of the Reservoir.

Smith Creek flows south from the Reservoir, along the east side of Heritage North and through the Heritage Wake Forest Golf Course. While promising for trail development and connectivity to the Reservoir, greenway easements were not obtained in the section along the golf course.

The NC 98 Bypass Corridor Plan proposes a trail along the bypass corridor (between Durham Rd. and the reservoir) providing a much needed east to west trail connection to link Wake Forest's other trails that primarily run north to south. The trail will connect to both Smith Creek and Richland Creek Greenways.

RICHLAND CREEK WATERSHED

The corridor survey began at the intersection of Richland Creek and Harris Road, just south of the half-mile Olde Mill Stream Greenway. Here a sewer easement runs through fenced pastureland along the east side of the creek. At the upper portion of the study area, the dense vegetation—primarily cedar and pine—provides an adequate visual buffer from nearby residences. Sandy, soft soils indicate a regular flood regimen. Evidence of stream health includes vegetated stream banks and very little suspended sediment. Bedload sediment primarily consists of coarse grained sands. This is sporadically (but not excessively) deposited as sandbars throughout the stream corridor. There are periodic points of stream bank degradation where the creek appears to be widening. Preserving the floodplain area will allow the stream to manage water velocity by providing room for the creek to increase its sinuosity, as necessary, to dissipate stream energy.

Richland Creek has also undergone some development since the original plan in 2002, but not to the extent observed in the Smith Creek watershed. Joyner Park, which was previously mentioned, represents the latest open space acquisition achievement by the Town. Over three miles of trails scheduled to open in 2009. An amphitheater, restoration of the existing farm buildings, and addition of a log cabin, garden, rest room and infrastructure are also planned. The Board of Commissioners approved a bid on the construction contract in early 2008 and construction has begun.

Greenway Development in the Richland Creek Watershed:
No further work has been done to connect the Olde Mill Stream Greenway to areas north or south of the existing, quarter-mile segment along Richland Creek. The only other section of existing trail in the watershed is at Tyler Run Park, located east of Richland Creek. The trail at Tyler Run is a quarter-mile long and is only five feet wide.

The sewer easement corridor along Richland Creek is approximately 15 to 20 feet wide and covered with a soft, dense layer of dormant rye grass where daylight more easily penetrates the easement's thinner canopy. Near West Stadium Drive, the grade tapers, leaving standing water in many places. Additionally, beaver dams are in place, further limiting drainage and saturating the land. Just north of Wake Forest-Rolesville High School, at the west end of West Juniper Avenue, lies an access road to the power and sewer utility corridors. This access road could be used as a trail connector to the high school while still serving as an access road for utility maintenance vehicles. Shortly past the access road, Richland Creek passes under Stadium Drive, where there appears to be room for a trail underpass.

The Paschal Golf Course lies at the approximate midpoint of the Richland Creek corridor. The nine-hole golf course facility provides greenway opportunities and constraints. The primary constraints are private property issues (the course is owned by the Southeastern Baptist Theological Seminary) and safety considerations. Most of a greenway/golf course conflict would be confined to negotiating the entry drive, parking lot, club house area, the #5 tee box and the #1 fairway. A power line corridor bisects the golf course, thus presenting a trail placement opportunity. However, after crossing the golf course, the power line continues across the very busy Durham Road (Highway 98).

One possible greenway alignment through the golf course involves running the trail between Richland Creek and the golf course driveway, behind the fifth hole tee box, and over the creek (a ford exists at this point, but it would require significant improvements to serve as a greenway crossing). After crossing the creek, a trail could continue along the west side of Richland Creek (through the woods) paralleling the first fairway. Richland Creek serves as a water hazard down the right side of the fairway, thus discouraging play along this side of the hole. Additionally, the woods along the west side of the creek are dense enough to provide some protection from wayward tee shots (though a net may ultimately be required to ensure safety).

Potential benefits to running the trail through the golf course include an opportunity to improve the vegetative buffer between the entry drive and Richland Creek and the possible economic impact of greenway users frequenting the clubhouse as a resting place. If the clubhouse catered to the needs of trail users, through services such as refreshments, bicycle rentals, and/or carrying running/cycling merchandise, the greenway trail could serve as a new source of revenue.

At the south end of the golf course, an at-grade crossing along the creek will be required at the intersection of Richland Creek and Durham Road. The area just south of Durham Road appears to have the space (a cleared area approximately an acre in size) to host a trailhead facility. There are also several cleared corridors just south of Durham Road, along the creek, that connect to adjacent neighborhoods.

After crossing Durham Road, it appears to be advantageous to follow the power line corridor or the sewer line corridor south to NC 98, with minimal need for boardwalk in wet areas. The NC 98 bridge over Richland Creek provides plenty of clearance for the trail to continue on to Capital Blvd. (US-1). It is possible to continue the Richland Creek Trail from Capital Blvd. (US-1) through Raleigh's jurisdiction to the Neuse River Trail via the 10 foot wide multipurpose path along New Falls of Neuse

Road. This would require construction of a passable culvert in place of the existing three 36 inch drainage pipes. A trailhead should be created until such an underpass is possible, though it may present some challenges for automobile access (a suitable location could be near the tennis courts off of Pasture Walk Way). Ultimately, establishing a safe trail connection across or underneath Capital Blvd. (US-1) should be the goal, providing a critical link between the greenways networks of the Town of Wake Forest and the City of Raleigh.

HORSE CREEK WATERSHED:

From the intersection of Horse Creek and Purnell Road, few residential units are along the corridor down to Jenkins Road. Trees and thickets shade the entire floodplain. River Birch and Tulip Poplar are the dominant species in the lower, wetter areas. The floodplain is very wide (approximately 300 feet) in some places. Pines are more prolific along the toe of slopes. Despite the rolling topography and thick vegetation, in some places traffic from Capital Blvd. (US-1) can be heard from the stream's edge.

Wildlife habitat along the stream looks good, however, the only evidence of aquatic life comes from beaver dams and tree cuts. The soft, sandy soils are not favorable for hosting a paved trail. In many areas a boardwalk would be needed in order to traverse the wet areas. Horse Creek also passes through the old Wake Forest Country Club (which is now closed) bisecting a couple of fairways. Redevelopment of the golf course could present an opportunity for acquisition of greenway easements for trail construction. The stream is in a degraded condition with undercutting observed and the golf course extends to the creek.

At Kearney Road, an enormous corrugated steel culvert allows the road to span Horse Creek. Slopes are covered with briars and riprap. The ridge slopes, above and below Kearney Road, appear to be steeper and the floodplain much narrower.

At Thomson Mill Road, three concrete culverts (approximately 15' high and 10' wide) allow the road to span Horse Creek. Before the stream enters the culverts, the flood plain is wide and healthy on the south side. Below the culverts the stream narrows and turns sharply north.

Greenways along Horse Creek would need to be constructed close to the toe of slopes. Soggy soils and dense vegetation make it apparent that the floodplain is effectively storing water. Greenway easements or fee simple ownership are advisable for the creek flood zones and low lying areas. Where slopes are steeper and floodplains narrower, it will be substantially more difficult to construct trails and obtain access due to more complicated land ownership issues.

TOM'S CREEK WATERSHED

Tom's Creek is the smallest of the four watersheds in the study area. However, at the junction of the study area boundary and Tom's Creek lies Brown's Lake, one the most significant water and scenic resources in the study area. The creek flows in a southwest direction before terminating at the Neuse River. On both sides of Forestville Road are areas of marsh. Undoubtedly, the low turbidity and plant life are filtering pollutants and sediments from the upper reaches of the stream. However, in 2006, Tom's Creek was a registered 303(d) stream, indicating that considerable ecological degradation has occurred in this corridor (no other waters were identified in Wake Forest through the 2006 North Carolina Water Quality Assessment and Impaired Waters List).

Brown's Lake is approximately 13 acres, and is located south of Burlington Mills Road (directly below the marsh area), just west of Forestville Road. The lake is oblong, generally running east to west and sits beautifully between the wooded knolls on the north and south sides. A few single-family residences are on the north side of the lake and a subdivision is on the southeastern side of the lake. The degree to which the lake is buffered from human impacts is debatable. The mature vegetation reduces the amount of sediments that would otherwise wash into the lake during storm events. However, there are ATV trails that have been carved through the woods, thus reducing the effectiveness of the existing vegetation.

Below Brown's Lake, Tom's Creek passes between the Saint Andrews Plantation subdivision to the north and the Saint Andrews subdivision to the south. Larger lots are situated on the south side of the stream with homes sited well away from the banks of Tom's Creek. Impacts from both Hurricane Fran and developers caused a significant reduction in the number of mature trees that lined the stream banks. There should be increased efforts to replant where mature trees once existed. It is apparent by the maintained lawns that stretch to the edge of the stream, and the lack of vegetative buffering, that the current residents along the stream enjoy the unobstructed view of the creek. It is here, between the subdivisions, that the sedimentation is most evident.

Below Ligon Mill Road is an emergent wetland that stretches down to the Neuse River. Here the soils are waterlogged and much of the standing timber is dead. The wetland is part of a 31-acre plot (with approximately 17 acres are above the floodplain) bought by the Town of Wake Forest through the Clean Water Management Trust Fund. A future park and education center is intended for the site, and an access road would provide an excellent opportunity for an interpretive trail. Walking the road south to watch beavers, just above the point where Tom's Creek feeds into the Neuse River, is already an occasional practice for residents aware of the wildlife population along the Neuse.